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REMARKS

Claims 1 – 29 are pending in the present Application. Claims 28 – 29 have been cancelled, and Claims 30 – 32 have been added, leaving Claims 1 – 27 and 30 – 32 for consideration upon entry of the present Amendment. The Specification has been amended to correct certain typographical errors.

Claim 30 – 32 have been added to further claim the invention. Antecedent support for Claims 30 – 32 can be found in at least Paragraphs [0046] and [0047], and Figure 3 as originally filed.

No new matter has been introduced by these new claims. Reconsideration and allowance of the claims are respectfully requested in view of the following remarks.

Information Disclosure Statement

Applicant would like to draw the Examiners attention to the Information Disclosure Statement (IDS) submitted on 11/17/03 by the Applicant, Citation #12 and #31 are lined through, and Citation #30 has not been initialed, both without explanation. Applicant respectfully requests that the art submitted in this Information Disclosure Statement be considered and a fully initialed PTO Form A820 be returned to the Applicant.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 1 – 7, 10 and 13 - 27 stand rejected under 35 U.S.C. § 102(b), as allegedly anticipated by U.S. Patent No. 5,372,689 to Carlson, et al. Applicant respectfully traverses this rejection.

Carlson et al. teach an ion exchange membrane supported by a single porous sheet disposed between the anode and a screen set. Carlson et al. disclose a “porous sheet 14 is perforated having multiple-pore sizes”. (Col. 3, lines 48 – 50) However, Carlson et al. fail to teach multiple porosities.

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Variant Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987).

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Applicants' independent claims disclose a porous support member comprising a first portion and a second portion wherein the porosity of the first portion differs from the porosity of the second portion.

Carlson et al. do not teach either a porous support member comprising a first portion and second portion of differing porosities. Contrary to the Office Action, Carlson et al. focus on pore size, not porosity. Multiple-pore sizes does not mean different portions with different porosities. Carlson et al. are interested in dual-directional flow of oxygen or hydrogen and water. They discuss porosity in relation to the whole porous sheet. (Col. 4, lines 1 – 30)

Regarding the dependent claims, the limitation of the support member being sintered is an article limitation since a sintered layer is different than a non-sintered layer. It is not merely a process limitation but affects the resultant article. It is also noted that Gorman is discussed in relation to the sintering. However, since this is an anticipation rejection, the discussion of Gorman is not relevant.

Regarding other dependent claim elements, Carlson et al. fail to teach a porous member with portions comprising different porosities, and hence the claimed third portion porosity can not be inherent. Regarding the claimed porosities, since Carlson et al. do not have first and second portions, they can not have both first and second porosities. It is not alleged in the Office Action that Carlson et al. teach a sintered porous support member. Regarding Claims 16, 19, and 23, these claims state that the support member further comprises the first electrode. It is not explained how the support member of Carlson et al. can or would be "inherently capable of functioning as the claimed first and second electrodes". (Office Action, page 4) Applicants contend that without the electrode being part of the support member, the support member is not inherently capable as functioning as an electrode. Carlson et al. fail to teach the porous support comprising an electrode. Additionally, the reference to the channels illustrated in Figure 4 of Carlson et al. is not understood. Claims 10 and 20 were directed to the support member comprising the channels, not to channels through a screen adjacent the porous support member.

For at least these reasons, Carlson et al. fail to anticipate Applicants' claims. Applicants respectfully request reconsideration and withdrawal of this rejection.

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Claim Rejections Under 35 U.S.C. § 102(e)

Claims 1 – 5, 8 and 15 – 19 stand rejected under 35 U.S.C. § 102(e), as allegedly anticipated by U.S. Patent Application Publication No. 2002/0086195 to Gorman et al. Applicants respectfully traverse this rejection.

Gorman et al. teach a PEM fuel cell wherein catalyst layers are disposed on both sides of a proton exchange membrane. Bilayer porous plates are positioned adjacent the catalyst layers. Water transport plates (WTP) are positioned adjacent the porous plates that “provide a full planar surface to the bilayer plate and the WTP acts as a water source that may be augmented by inlet stream water saturation up to about 100% relative humidity” [0011]. The Examiner admits that Gorman fails to teach a sintered porous plate as taught and claimed in the present application.

It is alleged that the bilayers of Gorman are inherently capable of functioning as the first and second electrodes, however, this position is unsupported. To be inherent, the inherent feature must necessarily flow from the teaching and not be a mere possibility. Since Gorman does not teach a bilayer comprising an electrode, it is not understood how the bilayer can inherently function as an electrode.

For at least the reasons that a sintered support member is different from an unsintered support member (hence it is not a mere process limitation), since Gorman fails to teach a sintered support member, and since Gorman et al. fail to teach a support member comprising an electrode, Gorman et al. fail to render the present claims obvious. Reconsideration and withdrawal of these rejections are respectfully requested.

Claim 20 stands rejected under 35 U.S.C. § 102(e), as allegedly anticipated by U.S. Patent Application Publication No. 2003/0230495 A1 to Anderson et al. Applicants respectfully traverse this rejection.

Anderson et al. teach an electrolysis system and a method of operating the system wherein the system comprises a gravity fed water system employing a non-continuous water supply. Here, as with Gorman et al., there is no support provided to overcome the claim element of a sintered support member. Claim 20 claims “a flow field consisting essentially of a sintered porous support member”. Hence, Anderson et al. are at least missing that element of Claim 20. Since to anticipate a claim, a reference must disclose each and every element of the claim,

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Anderson et al. fail to anticipate the present claim. Applicants respectfully request reconsideration and withdrawal of this rejection.

Claim Rejections Under 35 U.S.C. § 103(a)

Claim 6 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Gorman, et al. Applicants respectfully traverse this rejection.

As discussed above, Gorman et al. teach PEM fuel cells comprising bilayer porous plates and water transport plates. As admitted by the Examiner, Gorman et al. fail to teach a sintered porous plate. For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon: *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996). Since Gorman et al. fail to teach, suggest, or provide motivation with an expectation of success to include this missing element of the present claims, Gorman et al. fail to render the present claim obvious. Applicants respectfully assert that the Examiner has not shown a *prima facie* case of obviousness. Reconsideration and withdrawal of this rejection are respectfully requested.

Claim 9 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Carlson et al. Applicants respectfully traverse this rejection.

As discussed above, Carlson et al. fail to teach a porous support member comprising a first portion and a second portion with different porosities, and fail to teach a sintered support member. Furthermore, there is no teaching or motivation in Carlson et al. to form a single layer plate comprising a decreasing porosity gradient. In order to modify a reference, it is necessary to determine what an artisan would have been motivated to do with an expectation of success, not what an artisan could have tried. There is no motivation or expectation of success to make the suggested modification. There is no reason that Carlson et al. would have optimized a pore size to attain a porosity gradient. Even if Carlson et al. adjusted the pore size, there is still no motivation or expectation of success to modify their single porosity layer to form a gradient.

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Since Carlson et al. fail to teach, suggest, or provide motivation with an expectation of success to include these missing elements of the present claims, Carlson et al. fail to render the present claim obvious. Applicants respectfully assert Examiner has not shown a *prima facie* case of obviousness.

Claims 11 - 12 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Carlson, et al. in view of U.S. Patent No. 6,666,961 B1 to Skoczylas et al. Applicants respectfully traverse this rejection.

It is first noted that Col. 7, lines 14 – 17 and Figure 4 of Skoczylas et al. are referenced to teach flow fields with grooves and other flow features. However, Figure 4 is a graph, and Col. 7, lines 14 – 17 discuss porosities and manners of making a porous electrode. Col. 7 of Skoczylas et al. does not discuss channels or channel patterns.

It is alleged that one skilled in the art would have found the claimed flow channel patterns only a matter of design choice. However, no motivation to combine teachings of Skoczylas et al. into the porous support of Carlson et al., or that such combination has an expectation of success. Carlson et al.'s porous member is intended to enable dual-directional flow. There is no expectation of success that the incorporation of channels in to the porous support of Carlson et al. will not adversely affect the function of the porous support. As is noted above, it is not relevant what an artisan could do, but what an artisan would do with an expectation of success based upon various teachings. Here, there is no motivation to modify Carlson et al. and no expectation of success. Reconsideration and withdrawal of this rejection are respectfully requested.

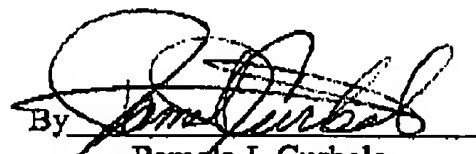
It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to the Applicant. Accordingly, reconsideration and withdrawal of the rejection(s) and allowance of the case are respectfully requested.

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If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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